

WHAT IS CLAIMED IS:

1. A method for determining a forward data rate and a forward transmission power level in an access terminal of a mobile communication
5 system, comprising the steps of:

measuring a received carrier-to-interference ratio (C/I) of a forward pilot channel and determining a forward data rate by matching the measured C/I with a reference C/I based on a data rate of packet data;

determining margin information for determining a forward transmission
10 power level by calculating a difference between the measured C/I and the reference C/I if the measured C/I is not identical to the reference C/I; and

transmitting the determined forward data rate and margin information over a reverse transmission channel.

15 2. The method as claimed in claim 1, wherein the step of determining the forward data rate comprises the steps of:

selecting a largest one of C/I thresholds that is smaller than the measured C/I, stored in a C/I table, as a reference C/I; and

determining a data rate associated with the selected reference C/I.
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3. The method as claimed in claim 1, wherein the step of determining the margin information comprises the steps of:

calculating a difference between the reference C/I and the measured C/I;
and

25 determining margin information by converting the calculated difference into a value comprised of a predetermined number of data bits.

4. The method as claimed in claim 1, wherein the step of transmitting the determined forward data rate and margin information comprises

the step of transmitting the determined forward data rate for one slot and the margin information for a next one slot over the reverse transmission channel.

5. The method as claimed in claim 4, wherein the determined
5 forward data rate and the margin information are repeated once before transmission.

6. The method as claimed in claim 4, wherein the C/I is measured for 2 slots of the forward pilot channel.

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7. The method as claimed in claim 1, wherein the step of transmitting the determined forward data rate and margin information comprises the step of transmitting the determined forward data rate and the margin information for one slot over the reverse transmission channel.

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8. A method for determining a forward data rate and a forward transmission power level in an access network of a mobile communication system, comprising the steps of:

receiving the forward data rate and margin information over a reverse
20 link;

creating data to be transmitted at the received data rate and

decreasing the transmission power level using the received margin information and transmitting the data at the decreased transmission power level.

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9. The method as claimed in claim 8, wherein a forward pilot channel transmits a signal at the constant transmission power level regardless of the forward data rate or the margin.

10. The method as claimed in claim 9, wherein when the forward
30 data rate and the margin information are received over two slots, scheduling of

the forward data rate and determination of the transmission power level are performed in a unit of two slots.

11. A method for determining a forward data rate and a forward
5 transmission power level in a mobile communication system, comprising the steps of:

measuring, in an access terminal, a received C/I of a forward pilot channel;

determining the forward data rate by matching the measured C/I with a
10 reference C/I;

determining a difference between the measured C/I and the reference C/I as margin information;

transmitting the determined forward data rate and margin information over a reverse transmission channel; and

15 decreasing a transmission power level in an access network by power corresponding to the margin information and performing forward transmission at the forward data rate at the decreased transmission power level, upon receipt of the forward data rate and margin information,.

20 12. The method as claimed in claim 11, wherein the step of determining the forward data rate comprises the steps of:

selecting a largest one of C/I thresholds that is smaller than the measured C/I, stored in a C/I table, as a reference C/I; and

determining a data rate corresponding to the selected reference C/I.

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13. The method as claimed in claim 11, wherein the step of determining the margin information comprises the step of calculating a difference between the reference C/I and the measured C/I and converting the calculated difference into a value comprised of a predetermined number of data bits.

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14. The method as claimed in claim 11, wherein the step of transmitting the determined forward data rate and the margin information comprises the step of transmitting the data rate for one slot and the margin information for a next one slot over the reverse transmission channel.

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15. The method as claimed in claim 14, wherein the forward data rate and the margin information are repeated once before transmission.

16. The method as claimed in claim 14, wherein the access terminal
10 measures the C/I for 2 slots of the forward pilot channel.

17. The method as claimed in claim 14, wherein when the data rate and the margin information are received over two slots, the access network performs scheduling of the forward data rate and determination of the
15 transmission power level in a unit of 2 slots.

18. The method as claimed in claim 11, wherein the determined data rate and the margin information are transmitted for one slot over the reverse transmission channel.

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19. The method as claimed in claim 11, wherein the access network transmits a signal on the forward pilot channel at a constant transmission power level regardless of the data rate or the margin.

25 20. A method for determining a forward data rate and a forward transmission power level in an access terminal of a mobile communication system, comprising the steps of:

measuring a received C/I of a forward pilot channel; and

transmitting the measured C/I over a reverse data rate control (DRC)
30 channel.

21. The method as claimed in claim 20, wherein the transmitted C/I is two times as long as a length of the data rate control.

5 22. The method as claimed in claim 21, wherein the C/I is divided into leading bits and following bits as long as a length of the (DRC) channel, wherein the leading bits are first transmitted for one slot and then the following bits are transmitted for a next one slot.

10 23. The method as claimed in claim 21, wherein the transmitted C/I is transmitted for one slot of a data rate control channel , without repetition.

24. The method as claimed in claim 23, wherein the transmitted C/I is divided into leading bits and following bits , wherein the leading bits and the
15 following bits are transmitted in the first half-slot and the second half-slot of the reverse DRC channel, respectively.

25. A method for determining a forward data rate and a forward transmission power level in an access network of a mobile communication
20 system, comprising the steps of:

receiving a measured C/I over a reverse link;

determining a forward data rate by matching the measured C/I with a reference C/I based on a data rate of the packet data;

determining margin information for determining the forward
25 transmission power level by calculating a difference between the measured C/I and the reference C/I, when the measured C/I is not identical to the reference C/I;

creating data to be transmitted at the determined forward data rate;

decreasing the transmission power level using the calculated margin information; and

transmitting the transmission data at the decreased transmission power level.

26. The method as claimed in claim 25, wherein when the C/I is
5 received over 2 slots, scheduling of the data rate and the margin information is performed in a unit of 2 slots.

27. The method as claimed in claim 25, wherein the step of
determining the forward data rate comprises the steps of:
10 selecting a largest one of C/I thresholds that is equal to or is smaller than the measured C/I, stored in a C/I table, as a reference C/I; and
determining a data rate associated with the selected reference C/I.

28. The method as claimed in claim 25, wherein a forward pilot
15 channel transmits a signal at a constant transmission power level regardless of the forward data rate or the margin.

29. A method for determining a forward data rate and a forward
transmission power level in a mobile communication system, comprising the
20 steps of:

measuring, in an access terminal, a received C/I of the forward pilot channel;

transmitting the measured C/I over a reverse DRC channel;

determining, in an access network, the forward data rate by matching the
25 measured C/I with a reference C/I associated with a data rate of packet data upon receipt of the measured C/I over a reverse link;

determining margin information for determining the forward
transmission power level by calculating a difference between the measured C/I
and the reference C/I when the received C/I is not identical to the reference C/I;
30 creating transmission data associated with the determined data rate;

decreasing the transmission power level using the calculated margin information; and

transmitting the transmission data at the decreased transmission power level.

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30. The method as claimed in claim 29, wherein the C/I is two times as long as a length of the DRC.

31. The method as claimed in claim 30, wherein the C/I is divided
10 into leading bits and following bits as long as a length of the data rate control(DRC), wherein the leading bits are first transmitted over one slot and the following bits are transmitted over a next one slot.

32. The method as claimed in claim 29, wherein the C/I is
15 transmitted over one slot of the data rate control channel, without repetition.

33. The method as claimed in claim 32, wherein the C/I is divided
into leading bits and following bits, wherein the leading bits and the following
bits are transmitted in the first half-slot and the second half-slot of the DRC
20 channel, respectively.

34. The method as claimed in claim 29, wherein when the C/I is
received over 2 slots, scheduling of the data rate and the margin information is
performed in a unit of 2 slots.

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35. The method as claimed in claim 29, wherein the step of
determining the forward data rate comprises the steps of:

selecting a largest one of C/I thresholds that is smaller than the measured
C/I, stored in a C/I table, as a reference C/I; and

30 determining a data rate associated with the selected reference C/I.

36. The method as claimed in claim 29, wherein a forward pilot channel transmits its channel signal at a constant transmission power level regardless of the forward data rate and the margin.

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37. A transmission apparatus for a mobile communication system, for determining a forward data rate using a C/I value measured from the pilot channel and transmitting the forward data rate and a transmission power level over a reverse transmission channel using margin information determined based
10 on a difference between a reference C/I and the C/I, comprising:

a first multiplexer for time-division-multiplexing the forward data rate and the margin information;

an encoder for encoding an output of the first multiplexer;

a spreader for spreading the encoded data rate and margin information;

15 and

a second multiplexer for time-division-multiplexing a reverse pilot channel and an RRI (Reverse Rate Indicator) channel to an output of the spreader.

38. The transmission apparatus as claimed in claim 37, further
20 comprising a repeater for repeating the output of the encoder and providing its output to the spreader when the forward data rate and the margin information are transmitted over 2 slots.

39. The transmission apparatus as claimed in claim 38, wherein the
25 first multiplexer alternately outputs the forward data rate and the margin information in a unit of one slot.

40. A transmission apparatus for transmitting a C/I in a mobile communication system, comprising:

30 an encoder for encoding a measured C/I;

a spreader for spreading an output of the encoder; and
a first multiplexer for time-division-multiplexing an output of the spreader, a reverse pilot channel and an RRI channel.

5 41. The transmission apparatus as claimed in claim 40, wherein the received C/I is outputted in a unit of one slot when the received C/I is transmitted in a unit of one slot, dividing the C/I into leading bits and following bits

 42. The transmission apparatus as claimed in claim 40, further
10 comprising:

a second multiplexer arranged at a front stage of the encoder, for equally dividing the C/I into leading bits and following bits when the C/I is transmitted in a unit of 2 slots, outputting the leading bits at a first slot and outputting the following bits at a next slot; and

15 a repeater interposed between the encoder and the spreader, for repeating an output of the encoder.